A New Species of *Hypochrysa* and a New Subgenus and Species of *Mallada*

(Neuroptera: Chrysopidae)

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Recently examined at the U.S. National Museum are specimens of two particularly interesting new chrysopids. One constitutes the only record of a member of the archaic subfamily Nothochrysinae for South America. Although *Hypochrysa argentina* Navás has turned out to be a *Suarius* (Adams 1975), it now appears that there is a *Hypochrysa* in Argentina after all.

Hypochrysa viridula, new species

Face short, eyes only shallowly domed, labrum incised,head, palps, scapes yellow green, pedicel and flagellum pale brown, segments elongate. Body pale green, pronotum short and broad, setae sparse, pale. Wing venation all green, stigmata opaque green, setae on veins sparse, very short, pale. In forewing, microtrichiated area extends to cubital fork. Venation as in Figure 1. In forewing, subcostal crossvein nearer to first than to second medial crossvein, second medial crossvein far basad of base of intramedial cell, six marginal forks of branches of RS + MA, second and third anal veins bend toward one another apically, and are connected by a short crossvein. In hindwing, venational pattern much as in *H. pernobilis*. Female with ninth tergite and ectoprocts entirely separate, ninth tergite unusually broad (Fig. 3). Eighth sternite (subgenitale) large, heavily sclerotized, trapezoidal; inter-segmental membrane infolded to form a deep pocket (Fig. 4, dashed line) opening anteriorly to subgenitale and confluent laterally with copulatory bursa. Bursal glands (Fig. 5) unusually large, with spinose surfaces, spermatheca pillbox-shaped with vela and slit opening dorsally to bursa; ventral invagination present, spermathecal duct short, well sclerotized.

Measurements (mm): antenna 6.6, forewing 9.2, hindwing 8.2.

Holotype female: Argentina, Missiones, Iguazu, 4-10 Oct. 1927, R.C. and E.M. Shannon, USNM.

This is a very small, stout-bodied species, at first glance resembling a *Chrysopiella.* The specimen is badly faded, but probably was all green in life. The wings are more slender than those of *H. nobilis*, the gradate cells with straighter margins, but the venational pattern is very similar. In *H. pernobilis,* the second and third anal veins of the forewing are fused apically; in *H. viridula* these veins show a condition which could well presage that of *H. pernobilis*. I have not had an opportunity to examine the female genitalia of *H. pernobilis.*

Kimochrysa, a South African nothochrysine genus, differs from *Hypochrysa* in that the female has an extremely long spermathecal

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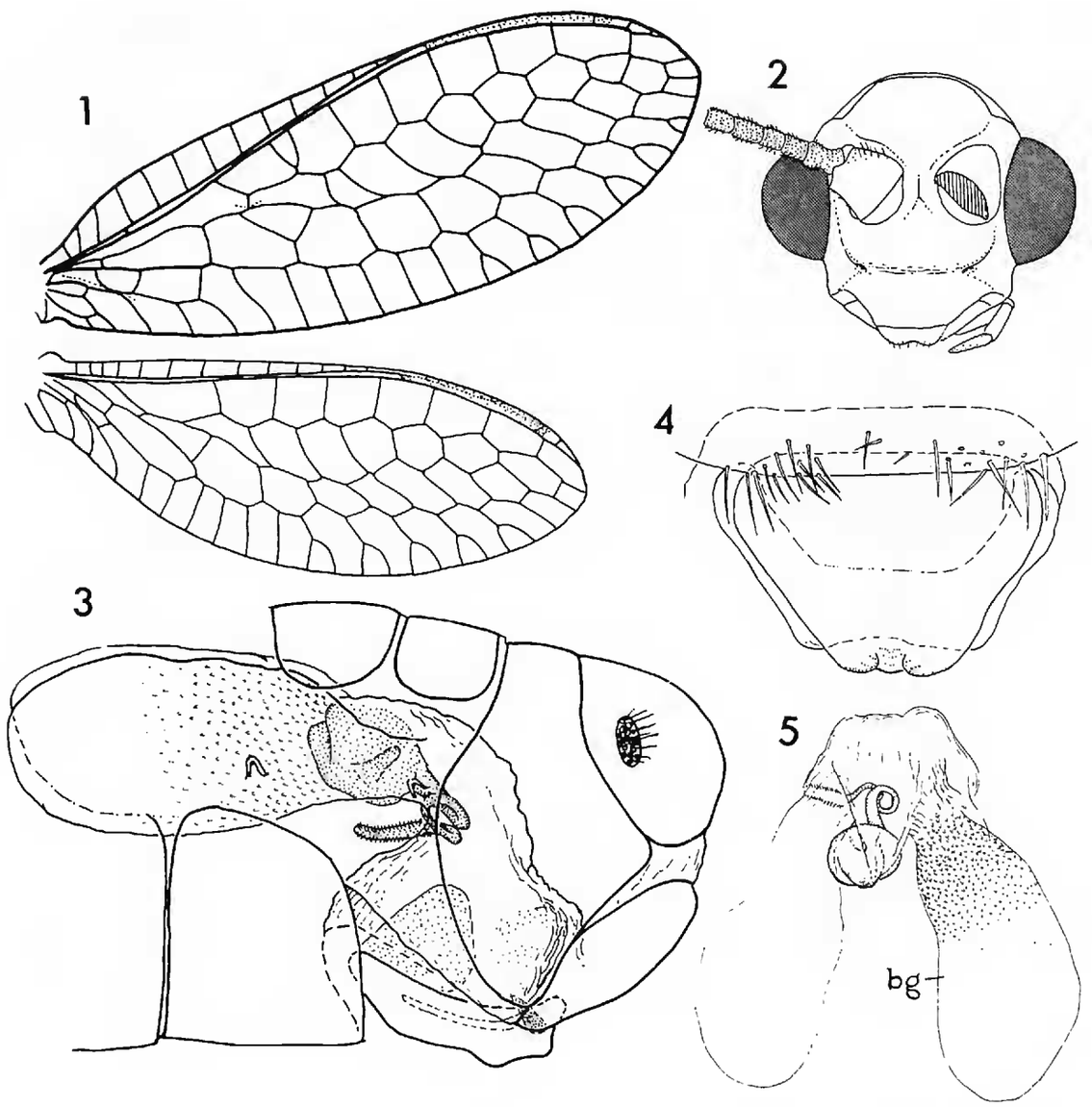

Fig. 1-5. *Hypochrysa viridula.* Fig. 1, wing venation, Fig. 2, head, Fig. 3, female abdomen, showing copulatory bursa, bursal glands, and spermatheca *in situ*, Fig. 4 subgenitale (sternite 8), ventral, dashed line posterior to sternite 7 indicates extent of invagination, Fig. 5, spermatheca and bursa from above, bursal gland texture shown on one side only. Abbreviation: bg — bursal gland.

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duct, small cordate subgenitale and subgenital unsclerotized basally (Tjeder, 1966). The venation is smaller in both genera, but in *Kimochrysa* the anal veins of the forewing are unspecialized, and the second median crossvein lies much nearer the intramedian cell. The subcostal crossvein is near the origin of RS in *Kimochrysa,* but near the base of the wing in *Hypochrysa.*

Based upon venational and genitalic characters, the new species is more similar to the European *H. pernobilis* than to the geographically nearer *Kimochrysa.* Admittedly, this assertion might be made more strongly, if the male genitalia were known. Adams (1967) has reviewed the Nothochrysinae, the living members of which are similar to early

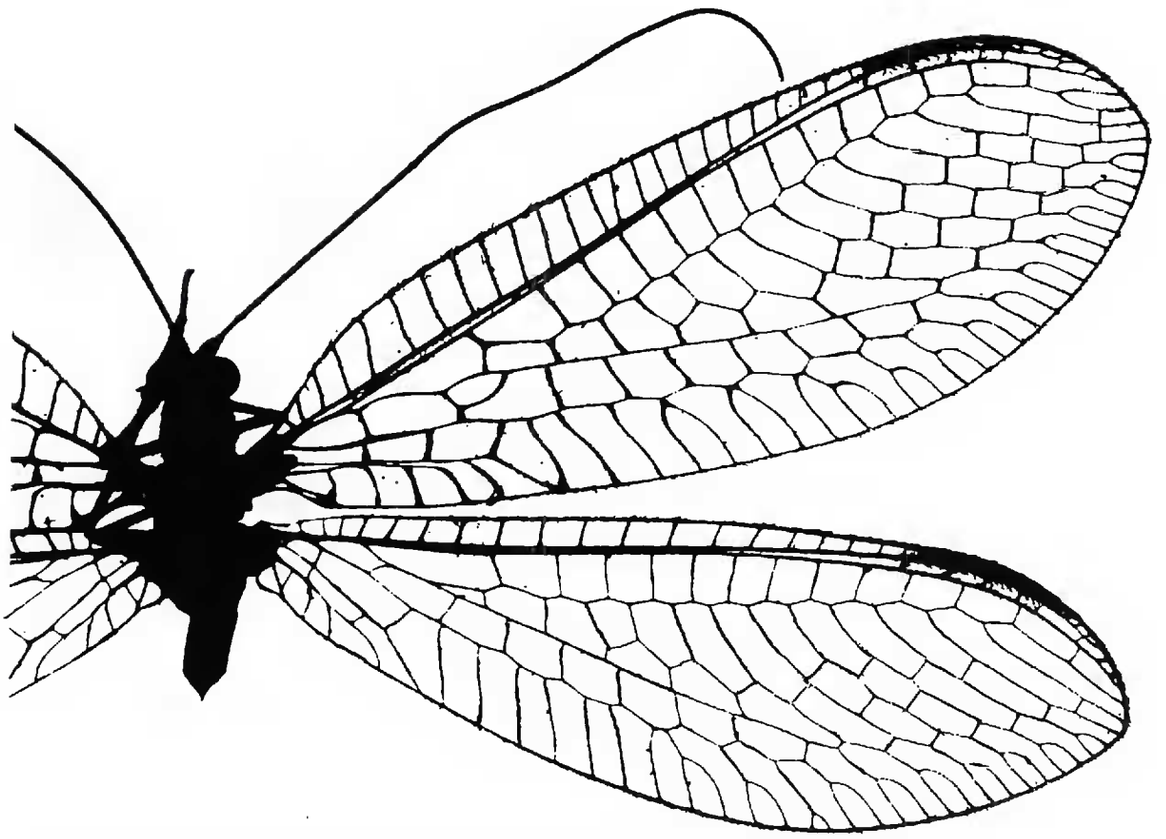

Fig. 6. *Mallada (Triadochrysa) triangularis.* Wings of Holotype.

Tertiary species. The subfamily exhibits a relict distribution, with species in Europe, South Africa, Western North America, South America, Australia, New South Wales, and Tasmania. It is apparent that *H. viridula* is another survivor of a once extensive early chrysopid fauna.

Mallada Navás

This genus is well represented in the Old World, but has until now, only three representatives in the New World. All are indigenous to the United States, although one species, *M. perfectus* (Banks) ranges into Mexico (Adams 1975).

Triadochrysa, new subgenus

Mandibles asymmetrical, left-toothed. Antennae shorter than wings. Venation (Fig. 6) as in *Mallada* except three gradate series are present. Caliciform organs (cuticular glands) on pronotum and central region of mesonotum in male, no abdominal microtholi. Male genitalia include tignum, gonarcus with wide mediuncus and prominent entoprocessus, hypandrium internum with comes, gonapsis, and gonocristae. Female spermatheca rounded posteriorly, with ventral incision.

Type species: *Mallada (Triodochrysa) triangularis*, n. sp.

This subgenus shares with *Mallada* the general arrangement of male genitalia, presence of caliciform organs, and venational pattern, especially the form of the inner gradate series, which extends basad parallel to psm, and ends on a branch of RS. The only strongly distinctive feature is the extra gradate series, which considering the

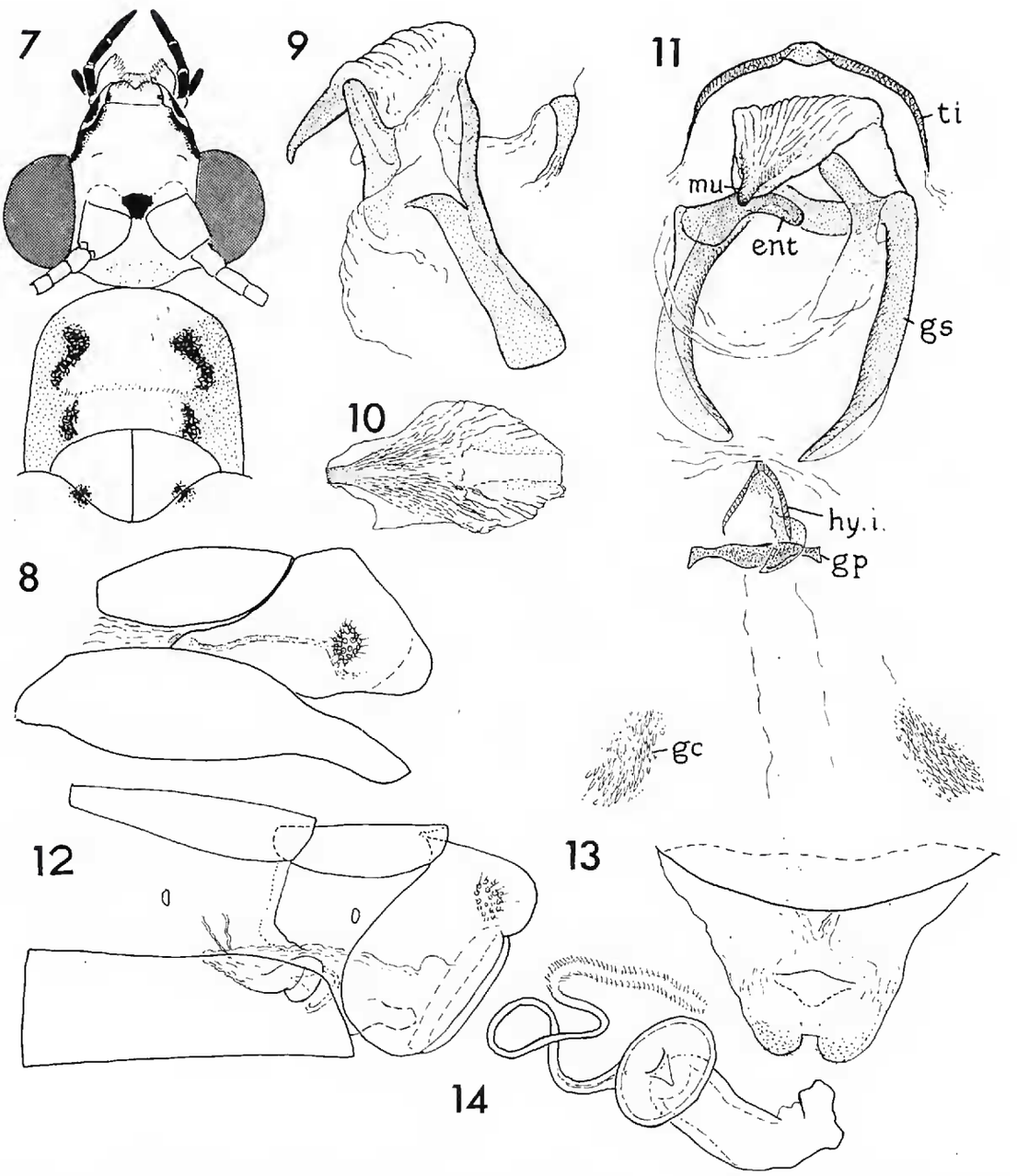

Fig. 7-14. *Mallada (Triadochrysa) triangularis.* Fig. 7, head and thorax, from above, Fig. 8, male abdomen, lateral, Fig. 9, tignum and gonarcus, lateral, Fig. 10, mediuncus, dorsal, Fig. 11, genital armature, Fig. 12, female abdomen, lateral, Fig. 13, subgenitale (sternite 8) ventral, Fig. 14, spermatheca, ventrolateral. Abbreviations: ent — entoprocessus, gc — gonocristae, gp — gonapsis, hy.i. — hypandrium internum, ti — tignum.

venational conservatism in this family, may be regarded as significant. The reduced, straplike gonapsis differs from the usual three-pronged one of *Mallada.* The name *Tiadochrysa* is feminine, from the Greek *triado-,* three, and *-chrysa,* golden.

Mallada (Triadochrysa) triangularis, new species

Head (Fig. 7) broad, eyes large, face short. Face ivory, black triangular interantennal mark (absent in some specimens), labrum with lateral black spots, genae black-striped,

mandibles black-striped basally, apical three palpomeres black. Antennae pale. Pronotum quadrate, anterior corners rounded, transverse furrow well developed, broadly ivory medially, two lateral red-brown spots, often connected as a zig-zagged stripe, margin green, setae pale. Mesoscutum with small black spots at prescutal suture, extending as small red marks on mesoprescutum. Remainder of thorax and abdomen green, pleurae pale. Legs slender, tarsal claw toothed.

Wings (Fig. 6) broad, blunt-tipped. Forewing: seven apparent pseudomedial crossveins beyond intramedian cell. Intermediate gradate series sometimes slightly irregular, one or two extra crossveins may be present. Dark: costals, radials, origin RS, bases of proximal branches of RS, gradates, medials, pseudomedials, base CuP, cubitals, pseudocubitals (irregularly), marginal forks at fork, and proximal branches. Most dark veins also narrowly dark-bordered.

Hindwing: venation pale except basal costals, apical radials, and gradates.

Male abdomen (Fig. 8): ectoproct prolonged as a short ligulate clasper. Tignum (Fig. 11) slender, with median process. Gonarcus flexed away from mediuncus base medially, forming a shallow dorsal cavity. Mediuncus rugose dorsally, median process bears laterally thin fin-like processes (Fig. 10). Entoprocessus digitiform, gonosaccus without setae, hypandrium internum bears large comes, gonapsis straplike with ill-defined margins, gonocristae in form of pointed scales.

Female abdomen (Fig. 12); not distinctive, subgenitale (Fig. 13) with large ventral pit, copulatory bursa a simple wrinkled sac with the usual two bursal glands, spermatheca (Fig. 14) with rounded posterior chamber, vela elongated, curved.

Measurements (mm; ranges, means in parentheses): male forewing 14.5 (15.4) 16.0, hindwing 13.4 (13.8) 14.3, antennae 10 (10.4) 11.5; female forewing 14.8 (16.4) 17.3 hindwing 13.2 (14.7) 16.0, antenna 11 (11.6) 11.7. (N = 10, wings; = 5, antennae.)

Holotype male, allotype female (both USNM) and 25 paratopotypes: Mexico, Hidalgo, Nr. Jacala, July 2-3, 1965, Flint and Ortiz (6 PA, 2 MCZ, 2 Mus. Nac. Cd. Mexico, 15 USNM). Additional paratypes: Mexico, V-26-49, Brownsville, Texas 67087, 49.9991. orchid plant (female, USNM); Hidalgo, nr. Zimapán, June 28, 1965, O.S. Flint (3 males 12 females, USNM), Michoacán, 3 mi. east Carapan, July 10, 1963, F.D. Parker and L.A. Stange (3 males, PA); Puebla, 14 mi. W. Huauchinango, June 17, 1951, H.E. Evans (male, PA).

Acknowledgements

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